

## SHORT COMMUNICATIONS

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### FALL MIGRATION OF THE WHITE-TAILED HAWK IN CENTRAL BOLIVIA

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**KEY WORDS:** *White-tailed hawk*; *Buteo albicaudatus*; migration; flocks; thermals.

Relatively little is known about raptor migration in Bolivia (Davis 1989, 1994, Zalles and Bildstein 2000, Olivo 2001). The White-tailed Hawk (*Buteo albicaudatus*), is a partial migrant in South America, whose North American populations also are thought to be migratory (Bildstein and Zalles 1998, Zalles and Bildstein 2000). The species distribution is mainly tropical, ranging from southwestern United States to Argentina (Sick 1993). There is only one report of migration for the species in South America (in Brazil through Ilha do Cardoso in January, Zalles and Bildstein 2000). In Bolivia, records indicating the distribution of White-tailed Hawks have been documented (Arribas et al. 1995), but no information on migration of this species has been reported.

Observations were carried out at the airstrip at Viru-Viru International Airport, 15 km north of the city of Santa Cruz (17°36'30"S, 63°09'25"W) in Central Bolivia. Surveys were made on 17–22 and 24 November 2000 by two observers, from 0900 to 1700 H, for a total of 51 hr. Observations were made using 8 × 30 binoculars and a scope of 60×.

A total of 477 White-tailed Hawks were counted. All birds exhibited unidirectional soaring or southward flapping flight.

None of the hawks were observed to stopover. A solitary juvenile stopped near a lagoon to rest for a few minutes, and several solitary adults perched on communication towers very close to the observers. When these birds perched, we observed the rusty shoulders, that the wing tips projected beyond the end of the tail, and some fine bands in the tail in addition to the primary black band; all of which are field marks for this species.

The frequency of migrating hawks for a single week was 8.5 hawks/hr. Two flocks were recorded, one of 203 hawks on 17 November and the second with 206 hawks on 20 November 2000. A few individuals flew alone (14%,  $N = 477$ ).

We confirmed the identification of all single migrating

hawks. The two large flocks flew over rapidly, however, and we were able to verify the identification of ca. 80 individuals in both flocks (or 17%,  $N = 477$ ). One solitary migrant was classified as a juvenile, the rest were recorded as adults.

There was a noticeable hourly pattern, 91% (433 hawks) were observed between 1100 and 1300 H, when thermals were well developed. Most of the hawks seemed to use thermals to aid their migration; only the second flock observed had a tail-wind in front of an approaching storm.

Hudson (1920) and Wetmore (1943) have reported migratory movements by White-tailed Hawks, but details are convincing. These citations may refer to passages of Swainson's Hawks, because White-tailed Hawks may join flocks of Swainson's Hawks briefly, then drop out and return to a local activity area (K. Bildstein pers. comm.). According to Fuller et al. (1998), migrating Swainson's Hawks funnel through this region of Bolivia during southward migration over South America. Zalles and Bildstein (2000), however, only report migrating Swainson's Hawks in large numbers near the village of Masicuri in Bolivia.

The southward movements of White-tailed Hawks we documented may correspond to a tropical breeding population residing north of our sampling location, rather than a more southern austral breeding population. However, further studies are needed to clarify migration on this little-known species.

Previously, Davis et al. (1995) and Zalles and Bildstein (2000) did not report any White-tailed Hawks migrating through Viru-Viru. These workers did note the migration of Snail Kites (*Rostrhamus sociabilis*) numbering 30 000 individuals in this area in November.

Regretfully, there are no previous reports of migratory movements of the White-tailed Hawk in South America. Hence, more studies are needed to determine the importance of Viru-Viru as part of a migratory route of White-tailed Hawks. Such research should determine the dates of early, peak, and late movements as well as identify the origins and destinations of these migrating hawks.

**RESUMEN.**—El busardo de cola blanca (*Buteo albicaudatus*), es un migrador parcial en América del Sur. No ex-

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isten observaciones de movimientos migratorios de la especie en Bolivia. Entre el 17 y el 24 de noviembre del 2000, se contaron un total de 477 individuos, volando solos o en bandadas en el Aeropuerto Internacional de Viru-Viru, en Bolivia. Todas las aves exhibieron un vuelo de planeo o aleteo unidireccional hacia el sur. La tasa de paso fue de 8.5 halcones por hora. La mayoría de las rapaces 91% fueron registrados entre las 11 de la mañana y la 1 de la tarde.

[Traducción del autor]

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## NOCTURNAL ARRIVAL AT A ROOST BY MIGRATING LEVANT SPARROWHAWKS

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**KEY WORDS:** Levant Sparrowhawk; *Accipiter brevipes*; Eilat; nocturnal migration.

Most soaring birds (i.e., raptors, *Accipiteridae*, pelicans, *Pelicanus* spp., storks, *Ciconia* spp., and cranes, *Grus* spp.) require rising air currents, thermals, over and slope-updrafts to accomplish their long distance movements (e.g., Porter and Willis 1968, Safriel 1968). On migration, or other long-distance movements, this requirement restricts

species with a heavy wing loading to regions (i.e., land masses vs. bodies of water) where thermals and updrafts occur and dictates diurnal flight (Spaar 1997). This soaring strategy is used almost exclusively by the large raptor species (eagles, buteos) because they are mostly incapable of generating sufficient power for sustained flapping flight (Pennycuik 1972). Smaller raptors (harriers, *Circus* spp., falcons, *Falco* spp., sparrowhawks, *Accipiter* spp.) however, can resort to flapping (powered)-gliding flight (Spaar 1997) during inclement weather conditions, or at night (Stark and Liechti 1993, Spaar and Stark 1996).

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